

STATE OF TENNESSEE DEPARTMENT OF HEALTH **ENVIRONMENTAL LABORATORIES**

TDH: Lab Services JRL Lab Services - Jackson Regional Lab Jackson, TN 38301 731-426-0686

TDH: Lab Services KRL Lab Services - Knoxville Regional Lab Knoxville, TN 37920 865-549-5201

TDH: Lab Services NCL Lab Services - Nashville Central Lab Nashville, TN 37243 615-262-6300

Sent To:

Geoff Klein

TDEC-DWS 200 East Race St Knoxville, TN 37763

Lab ID: N00004763 Nashville Central Laboratory

Sampling Agency: TDEC: Division of Water Supply

Billing Code:

327.39-12

This is to certify that the following results were determined using good laboratory pratices and in accordance with federal or state approved methodologies.

N00004763001

Project Name:

Sample Description:

KINGSTON WTP

Sampler Project Name: RAW

Project Site No.:

Station No.:

Date/Time Collected:

07/13/2009 09:25

Sampler's Name:

GEOFF KLEIN

County: Sample Matrix:

ROANE - 73

EFO:

Water

Sampling Agency:

Knoxville

Billing Code:

TDEC-DWS 327.39-12

Send Report To:

TDEC-DWS TDEC-DWS

Agency Invoiced: Priority Date:

Date/Time Received: (

07/13/2009 12:10

Received By:

L Barrociere

Field Determinations

pH:

Chlorine, residual:

Conductivity: Temperature:

Dissolved Oxygen:

Other: Flow:

CFS

TEST: Alkalinity, Total	ME					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	65	mg/L	3.8	10	S Burchfield	7/14/2009

TEST: Hardness, Calcium	ME	·				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	51	mg/L	0.7	1	P Leathers	7/14/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

N00004763002

Project Name:

Sample Description:

KINGSTON WTP

Sampler Project Name: FINISH

Project Site No.:

Station No.:

Date/Time Collected:

07/13/2009 09:30

Sampler's Name:

GEOFF KLEIN

County: Sample Matrix:

ROANE - 73

EFO:

Water Knoxville

Sampling Agency:

TDEC-DWS

Billing Code: Send Report To: 327.39-12 TDEC-DWS

Agency Invoiced: Priority Date:

TDEC-DWS

Date/Time Received:

07/13/2009

9 12:10

Received By:

TEST: Alkalinity, Total

L Barrociere

METI	HOD: EPA 310).2				l
RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	-

Field Determinations

Chlorine, residual:

Dissolved Oxygen:

CFS

Conductivity:

Temperature:

pH:

Other:

Flow:

ANALYTE RESULT UNITS MDL MQL ANALYZED BY: DATE

Total Alkalinity 62 mg/L 3.8 10 S Burchfield 7/14/2009

TEST: Hardness, Calcium	METHOD: SM 3500-Ca D						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Calcium hardness	51	mg/L	0.7	1	P Leathers	7/14/2009	

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

N00004763003

Project Name:

Sample Description:

ROCKWOOD WTP

Sampler Project Name: RAW

Project Site No.:

Station No.:

Date/Time Collected: Sampler's Name:

07/13/2009 10:05 **GEOFF KLEIN**

County:

Sample Matrix:

ROANE - 73 Water

EFO: Sampling Agency: Knoxville TDEC-DWS

Billing Code: Send Report To: Agency Invoiced: 327.39-12 TDEC-DWS TDEC-DWS

Priority Date:

Date/Time Received: Received By:

07/13/2009 12:10

L Barrociere

Field Determinations

pH:

Chlorine, residual: Conductivity: Temperature: **Dissolved Oxygen:**

Other: Flow:

CFS

TEST: Alkalinity, Total	MET					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	74	mg/L	3.8	10	S Burchfield	7/14/2009

TEST: Hardness, Calcium	METHOD: SM 3500-Ca D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	54	mg/L	0.7	1	P Leathers	7/14/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

N00004763004

Project Name:

Sample Description:

ROCKWOOD WTP

Sampler Project Name: FINISH

Project Site No.:

Station No.:

Date/Time Collected:

07/13/2009 10:10

Sampler's Name:

GEOFF KLEIN

County:

ROANE - 73

Sample Matrix: EFO:

Water

Sampling Agency:

Knoxville

Billing Code:

TDEC-DWS 327.39-12

Send Report To: **Agency Invoiced:** **TDEC-DWS** TDEC-DWS

Priority Date:

Date/Time Received:

07/13/2009 12:10

Received By:

L Barrociere

TEST: Alkalinity, Total	WE.	THOD: EPA 31	0.2			
ANALYTE	RESULT	RESULT UNITS MDL		MQL	ANALYZED BY:	DATE
Total Alkalinity	63	mg/L	3.8	10	S Burchfield	7/14/2009

Field Determinations

Chlorine, residual:

Dissolved Oxygen:

CFS

Conductivity:

Temperature:

pH:

Other:

Flow:

TEST: Hardness, Calcium	METHOD: SM 3500-Ca D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	68	mg/L	0.7	1	P Leathers	7/14/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit



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TDH: Lab Services NCL Lab Services - Nashville Central Lab Nashville, TN 37243 615-262-6300

Sent To:

Geoff Klein

TDEC-DWS

200 East Race St Knoxville, TN 37763

N00004763 Lab ID: Nashville Central Laboratory

Sampling Agency: TDEC: Division of Water Supply

Billing Code:

327.39-12

This is to certify that the following results were determined using good laboratory pratices and in accordance with federal or state approved methodologies.

Analytical Supervisor

N00004763001

Project Name:

Sample Description:

KINGSTON WTP

Sampler Project Name: RAW

Project Site No.:

Station No.:

Date/Time Collected:

07/13/2009 09:25

Sampler's Name: County:

GEOFF KLEIN

Sample Matrix:

ROANE - 73 Water

EFO: Sampling Agency: Knoxville TDEC-DWS

Billing Code: Send Report To: 327.39-12 TDEC-DWS

Agency Invoiced:

TDEC-DWS

Priority Date:

Date/Time Received:

07/13/2009

12:10

Received By:

L Barrociere

Field Determinations

pH:

Chlorine, residual: Conductivity: Temperature: **Dissolved Oxygen:**

Other: Flow:

CFS

TEST: Digestion Metals						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	07/14/2009				S Ufegbu	7/14/2009

TEST: ICP-MS	MET	METHOD: EPA 200.8				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	μg/L	0.93	5	M Pattanayek	7/14/2009
Barium	25	μg/L	2.5	5	M Pattanayek	7/14/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	7/14/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	7/14/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	7/14/2009
Cobalt	0.23J	μg/L	0.04	1	M Pattanayek	7/14/2009
Lead	0.28J	μg/L	0.10	1	M Pattanayek	7/14/2009
Manganese	29	μg/L	0.42	1	M Pattanayek	7/14/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	7/15/2009
Thallium '	0.92J	μg/L	0.03	1	M Pattanayek	7/14/2009
Vanadium	4.8J	μg/L	3.4	5	M Pattanayek	7/15/2009

EST: Mercury METHOD: EPA 245.1						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	μg/L	0.029	0.2	A Bass	7/14/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

N00004763002

Project Name:

Sample Description:

KINGSTON WTP

Sampler Project Name: FINISH

Project Site No.:

Station No.:

Date/Time Collected:

07/13/2009 09:30

Sampler's Name:

GEOFF KLEIN

County: Sample Matrix:

ROANE - 73 Water

EFO:

Knoxville

Sampling Agency: **Billing Code:**

TDEC-DWS

Send Report To: Agency Invoiced: 327.39-12 TDEC-DWS TDEC-DWS

Priority Date:

Date/Time Received:

07/13/2009 12:10

Received By:

L Barrociere

Field Determinations

pH:

Chlorine, residual: Conductivity: Temperature: **Dissolved Oxygen:**

Other:

Flow:

CFS

TEST: Digestion Metals	METHOD: EPA 200.2					
ANALYTE	RESULT	UNITS	MDL	MQL A	ANALYZED BY:	DATE
Digestion Metals	07/14/2009				S Ufegbu	7/14/2009

TEST: ICP-MS	ME.	THOD: EPA 20	8.0	·			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Arsenic	U	μg/L	0.93	5	M Pattanayek	7/14/2009	
Barium	21	μg/L	2.5	5	M Pattanayek	7/14/2009	
Beryllium	U	μg/L	0.11	1	M Pattanayek	7/14/2009	
Cadmium	U	μg/L	0.41	1	M Pattanayek	7/14/2009	
Chromium	U	μg/L	2.0	5	M Pattanayek	7/14/2009	
Cobalt	0.089J	μg/L	0.04	1	M Pattanayek	7/14/2009	
Lead	U	μg/L	0.10	1	M Pattanayek	7/14/2009	
Manganese	0.74J	μg/L	0.42	1	M Pattanayek	7/14/2009	
Selenium	U	μg/L	1.3	5	M Pattanayek	7/15/2009	
Thallium	0.13J	μg/L	0.03	1	M Pattanayek	7/14/2009	
Vanadium	U _	μg/L	3.4	5	M Pattanayek	7/15/2009	

TEST: Mercury	MET					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	μg/L	0.029	0.2	A Bass	7/14/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

N00004763003

Project Name:

Sample Description:

ROCKWOOD WTP

Sampler Project Name: RAW

Project Site No.: Station No.:

Date/Time Collected: Sampler's Name:

07/13/2009 10:05 GEOFF KLEIN

County:

ROANE - 73

Sample Matrix: EFO:

Water

Sampling Agency:

Knoxville TDEC-DWS

Billing Code: Send Report To:

327.39-12 TDEC-DWS TDEC-DWS

Agency Invoiced: Priority Date:

Date/Time Received:

07/13/2009 12:10

Received By:

L Barrociere

Field Determinations

pH:

Chlorine, residual: Conductivity: Temperature: Dissolved Oxygen:

Other: Flow:

CFS

TEST: Digestion Metals	METHOD: EPA 200.2					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	07/14/2009				S Ufegbu	7/14/2009

TEST: ICP-MS	ME ⁻	THOD: EPA 20	0.8			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	μg/L	0.93	5	M Pattanayek	7/14/2009
Barium	24	μg/L	2.5	5	M Pattanayek	7/14/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	7/14/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	7/14/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	7/14/2009
Cobalt	0.16J	μg/L	0.04	1	M Pattanayek	7/14/2009
Lead	0.43J	μg/L	0.10	1	M Pattanayek	7/14/2009
Manganese	20	μg/L	0.42	1	M Pattanayek	7/14/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	7/15/2009
Thallium	0.078J	μg/L	0.03	1	M Pattanayek	7/14/2009
Vanadium	U	μg/L	3.4	5	M Pattanayek	7/15/2009

TEST: Mercury	ME					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	μg/L	0.029	0.2	A Bass	7/14/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

N00004763004

Project Name:

Sample Description:

ROCKWOOD WTP

Sampler Project Name: FINISH

COCKAAOOD AA I

Project Site No.:

Station No.:

Date/Time Collected:

07/13/2009 10:10 GEOFF KLEIN

Sampler's Name: County:

ROANE - 73

Sample Matrix:

Water

EFO: Sampling Agency:

Knoxville

Billing Code:

TDEC-DWS 327.39-12 TDEC-DWS

Send Report To: Agency Invoiced:

TDEC-DWS

Priority Date:

Date/Time Received:

07/13/2009 12:10

Received By:

L Barrociere

Field Determinations

pH:

Chlorine, residual: Conductivity: Temperature: Dissolved Oxygen:

Other:

Flow:

CFS

TEST: Digestion Metals ANALYTE	METHOD: EPA 200.2					
	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	07/14/2009				S Ufegbu	7/14/2009

TEST: ICP-MS	ME ⁻	METHOD: EPA 200.8				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	μg/L	0.93	5	M Pattanayek	7/14/2009
Barium	27	μg/L	2.5	5	M Pattanayek	7/14/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	7/14/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	7/14/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	7/14/2009
Cobalt	0.10J	μg/L	0.04	1	M Pattanayek	7/14/2009
Lead	0.14J	μg/L	0.10	1	M Pattanayek	7/14/2009
Manganese	U	μg/L	0.42	1	M Pattanayek	7/14/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	7/15/2009
Thallium	0.046J	μg/L	0.03	1	M Pattanayek	7/14/2009
Vanadium	U	μg/L	3.4	5	M Pattanayek	7/15/2009

TEST: Mercury	ME.	ΓHOD: EPA 24	5.1			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	μg/L	0.029	0.2	A Bass	7/14/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit